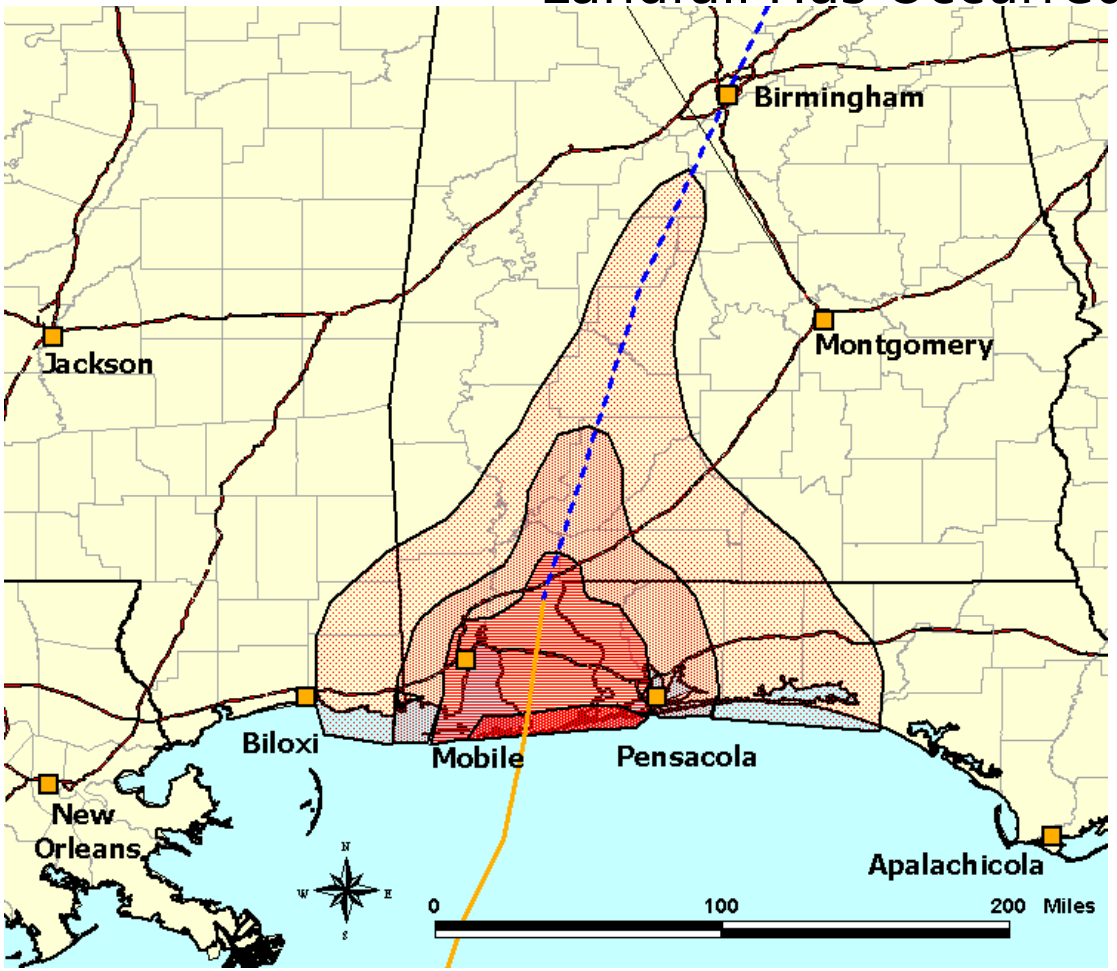
Hurricane Ivan Wind Distribution

Landfall Has Occurred

For Official Use Only!



Most Probable Landfall Wind Distribution

This hurricane scenario is based on a Category 3 storm making landfall in near proximity to Gulf Shores, AL. A small polygon of Category 4 winds was added for the barrier islands in proximity to the eyewall landfall.

Information provided on this page displays the most probable hurricane track based on information from the National Hurricane Center (NHC). These projections are based on information from the NHC ***(0500 EDT 09/16/2004)*** forecast.

Details about this model may be obtained at
https://englink.usace.army.mil
or contact ENGLink at 1-877-936-4546

US Army Corps of Engineers

Hurricane Ivan Wind Field

Sources:
HURREVAC
LRL-DEBRIS

CELRL-OP GIS Group

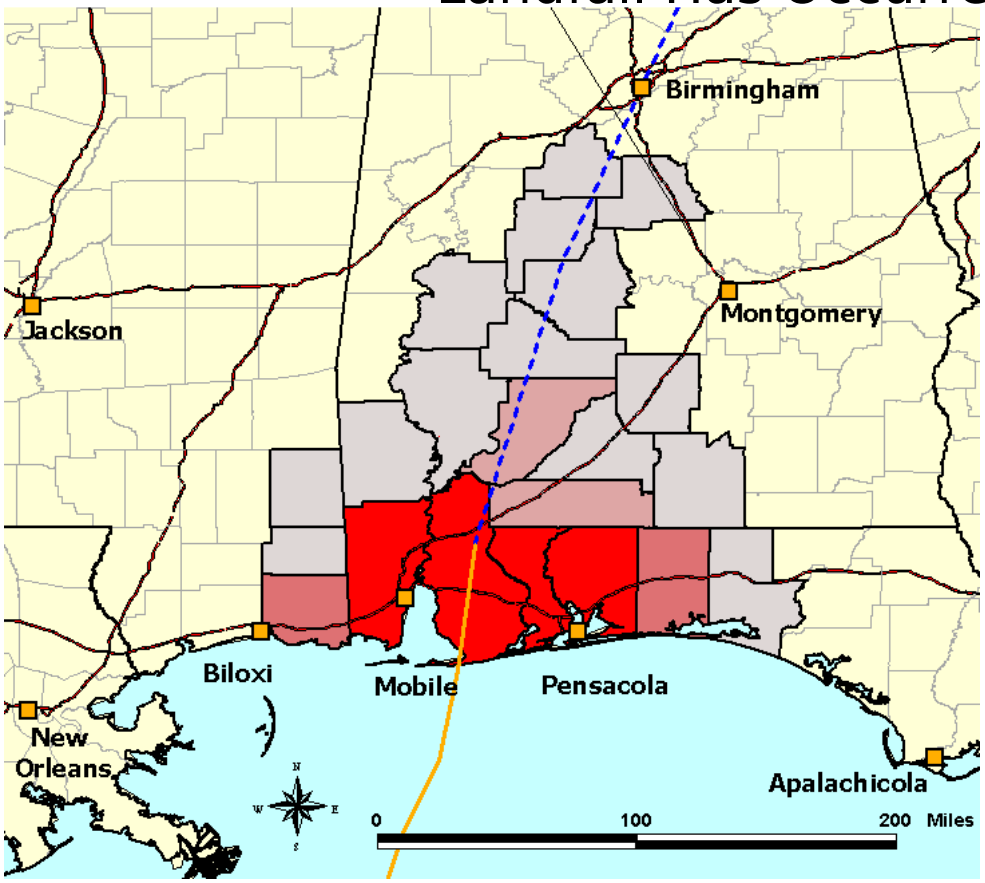
Generated By:
Terry Siemsen

Generated Date:
0630 EDT
09/16/2004

Hurricane Ivan Debris Model

Landfall Has Occurred

For Official Use Only!



Most Probable Landfall Debris Model Results

Alabama – 12,754,000 yd^3
Florida – 9,954,000 yd^3
Mississippi – 376,000 yd^3

Model results per county on following page

This hurricane scenario is based on a Category 3 storm making landfall in near proximity to Gulf Shores, AL

Information provided on this page displays the most probable hurricane track based on information from the National Hurricane Center (NHC). These projections are based on information from the NHC ***(0500 EDT 09/16/2004)*** forecast.

The amount of debris forecasted is possible total volume, not necessarily the volume that may need to be removed with Federal funds.

Details about this model may be obtained at https://englink.usace.army.mil or contact ENGLink at 1-877-936-4546

US Army Corps of Engineers

Hurricane Ivan Debris Model

Sources: HURREVAC, LRL-DEBRIS

Generated By: Terry Siemsen

Generated Date: 0630 EDT 09/16/2004

CELRL-OP GIS Group — Louisville Operations Division GIS

Hurricane Ivan Debris Model

Landfall Has Occurred

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State	Yards per State	County	Yards per County
Alabama	12,754,000		
		Baldwin	3,954,000
		Bibb	7,000
		Butler	1,000
		Chilton	3,000
		Clarke	54,000
		Conecuh	35,000
		Covington	16,000
		Dallas	76,000
		Escambia	285,000
		Marengo	1,000
		Mobile	8,112,000
		Monroe	156,000
		Perry	11,000
		Washington	16,000
		Wilcox	27,000
Florida	9,954,000		
		Escambia	7,856,000
		Okaloosa	734,000
		Santa Rosa	1,110,000
		Walton	254,000
Mississippi	376,000		
		George	46,000
		Greene	5,000
		Jackson	325,000
TOTAL	23,084,000		

The amount of debris forecasted is possible total volume, not necessarily the volume that may need to be removed with Federal funds.

Details about this model may be obtained at https://englink.usace.army.mil or contact ENGLink at 1-877-936-4546

US Army Corps of Engineers

Hurricane Ivan Debris Model

Sources:
HURREVAC
LRL-DEBRIS

CELRL-OP GIS Group

Generated By:
Terry Siemsen

Generated Date:
0630 EDT
09/16/2004

Hurricane Ivan Ice Model

Landfall Has Occurred

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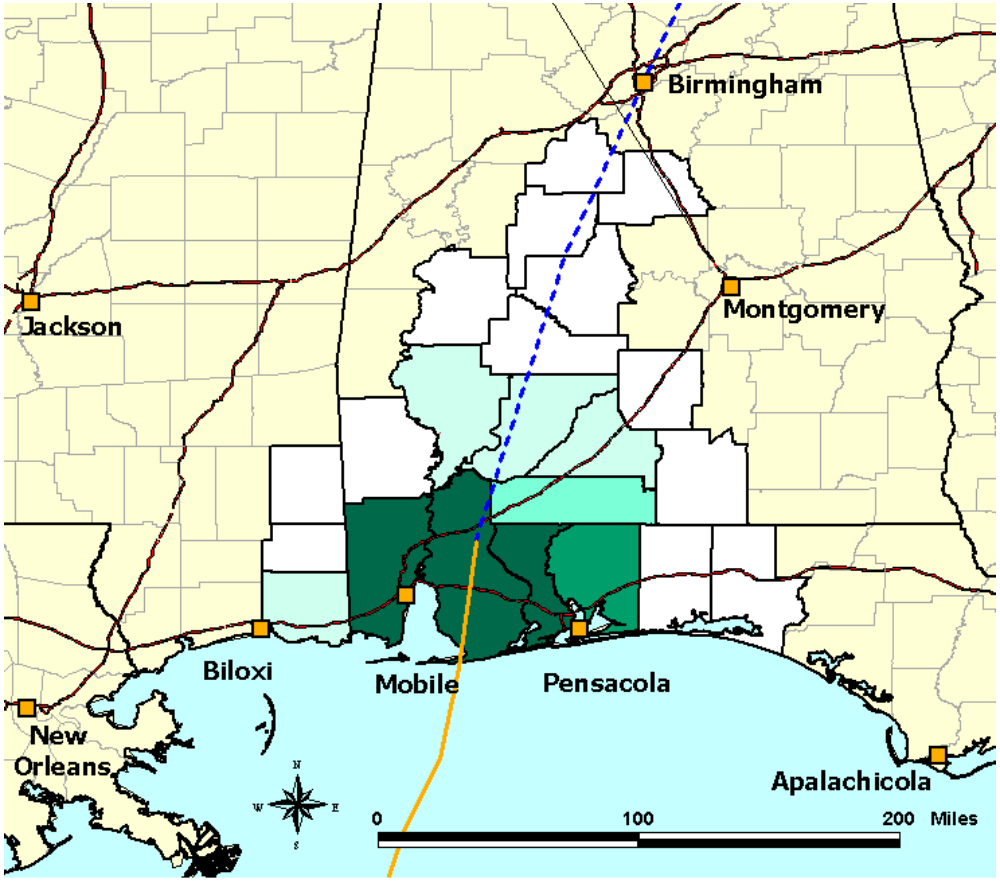


Most Probable Landfall Ice Model Results

Alabama – 2,012,000 pounds
Florida – 1,579,000 pounds
Mississippi – 3,000 pounds

Model results per county on following page

This hurricane scenario is based on a Category 3 storm making landfall in near proximity to Gulf Shores, AL

Information provided on this page displays the most probable hurricane track based on information from the National Hurricane Center (NHC). These projections are based on information from the NHC ***(0500 EDT 09/16/2004)*** forecast. The intensity of this hurricane has been altered to complete model runs.

The amount of ice forecasted is based on Mission Guide Book requirements (8 pounds per day per person) and Ice SME input and represents a first day daily need.

Details about this model may be obtained at
https://englink.usace.army.mil
or contact ENGLink at 1-877-936-4546

US Army Corps of Engineers

Hurricane Ivan Ice Model

Sources:
HURREVAC
LRL-DEBRIS

Generated By:
Terry Siemsen

Generated Date
0630 EDT
09/16/2004

CELRL-OP GIS Group

Louisville Operations Division GIS

Hurricane Ivan Ice Model

Landfall Has Occurred

For Official Use Only!

State	Pounds per State	County	Pounds per County
Alabama	2,012,000		
		Baldwin	604,000
		Clarke	8,000
		Conecuh	1,000
		Escambia	60,000
		Mobile	1,300,000
		Monroe	39,000
Florida	1,579,000		
		Escambia	1,303,000
		Santa Rosa	276,000
Mississippi	3,000		
		Jackson	3,000
TOTAL	3,594,000		

The amount of ice forecasted is based on Mission Guide Book requirements (8 pounds per person) and Ice SME input and represents a first day daily need. The assumption in this scenario is that 55% of the resident population affected by Ivan will have power outage in this area will cause a need for ice.

Details about this model may be obtained at
https://englink.usace.army.mil
or contact ENGLink at 1-877-936-4546

US Army Corps of Engineers

Hurricane Ivan Ice Model

Sources:
HURREVAC
LRL-DEBRIS

CELRL-OP GIS Group

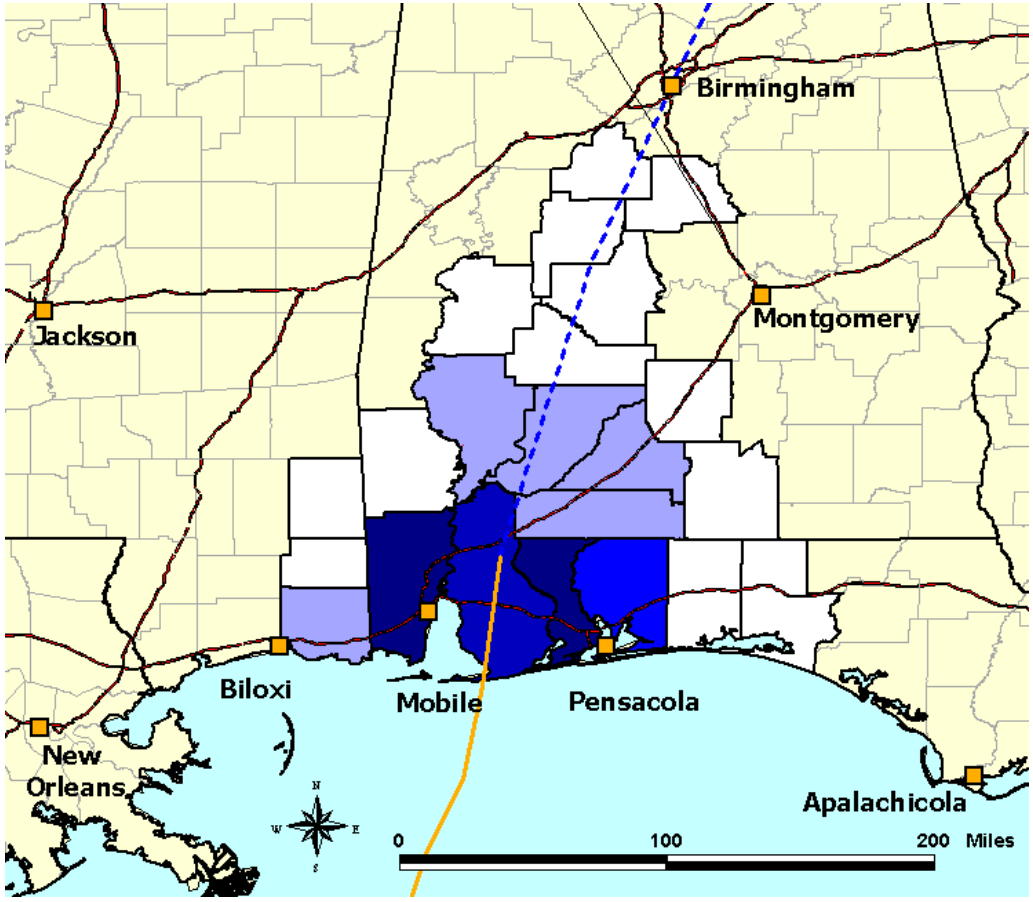
Generated By:
Terry Siemsen

Generated Date
0630 EDT
09/16/2004

Hurricane Ivan Water Model

Landfall Has Occurred

For Official Use Only!



Most Probable Landfall Water Model Results

Alabama – 1,006,000 liters
Florida – 790,000 liters
Mississippi – 2,000 liters

Model results per county on following page

This hurricane scenario is based on a Category 3 storm making landfall in near proximity to Gulf Shores, AL

Information provided on this page displays the most probable hurricane track based on information from the National Hurricane Center (NHC). These projections are based on information from the NHC ***(0500 EDT 09/16/2004)*** forecast.

The amount of water forecasted is based on Mission Guide Book requirements (4 liters per person per day) and Water SME input and represents a first day daily need.

Details about this model may be obtained at
https://englink.usace.army.mil
or contact ENGLink at 1-877-936-4546

US Army Corps of Engineers

Hurricane Ivan Water Model

Sources:
HURREVAC
LRL-DEBRIS

Generated By:
Terry Siemsen

Generated Date
0630 EDT
09/16/2004

CELRL-OP GIS Group

Louisville Operations Division GIS

Hurricane Ivan Water Model

Landfall Has Occurred

For Official Use Only!

State	Liters per State	County	Liters per County
Alabama	1,006,000		
		Baldwin	302,000
		Clarke	4,000
		Conecuh	< 1,000
		Escambia	30,000
		Mobile	650,000
		Monroe	20,000
Florida	790,000		
		Escambia	652,000
		Santa Rosa	138,000
Mississippi	2,000		
		Jackson	2,000
TOTAL	1,798,000		

The amount of water forecasted is based on Mission Guide Book requirements (4 liters per person) and Water SME input and represents a first day daily need. The assumption in this scenario is that 55% of the resident population affected by Ivan will have power outage in this area will cause a need for water.

Details about this model may be obtained at
https://englink.usace.army.mil
or contact ENGLink at 1-877-936-4546

US Army Corps of Engineers

Hurricane Ivan Water Model

Sources:
HURREVAC
LRL-DEBRIS

Generated By:
Terry Siemsen

Generated Date
0630 EDT
09/16/2004

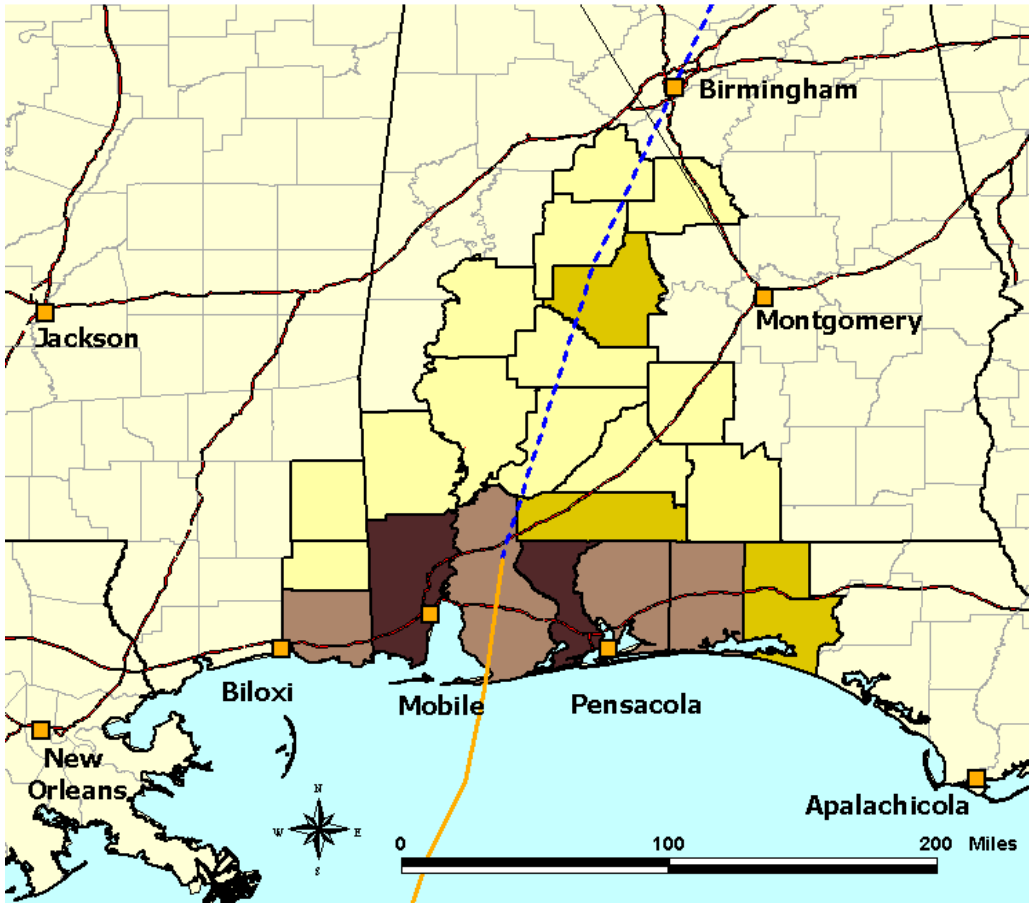
CELRL-OP GIS Group

Louisville Operations Division GIS

Hurricane Ivan Population Model

Landfall Has Occurred

For Official Use Only!



Most Probable Landfall Population Model Results

Alabama – 707,000 persons
Florida – 626,000 persons
Mississippi – 141,000 persons

Model results per county on following page

This hurricane scenario is based on a Category 3 storm making landfall in near proximity to Gulf Shores, AL

Information provided on this page displays the most probable hurricane track based on information from the National Hurricane Center (NHC). These projections are based on information from the NHC ***(0500 EDT 09/16/2004)*** forecast.

The number of persons included in this model output are those that would be included within estimated hurricane force winds (Census 2000 values).

Details about this model may be obtained at
https://englink.usace.army.mil
or contact ENGLink at 1-877-936-4546

US Army Corps of Engineers	**Hurricane Ivan Population Model**
Sources: HURREVAC LRL-DEBRIS	**CELRL-OP GIS Group**
Generated By: Terry Siemsen	
Generated Date 0630 EDT 09/16/2004	Page 1 of 2

Hurricane Ivan Population Model

Landfall Has Occurred

For Official Use Only!

State	Population per State	County	Population
Alabama	707,000		
		Baldwin	140,000
		Bibb	5,000
		Butler	< 1,000
		Chilton	2,000
		Clarke	18,000
		Conecuh	14,000
		Covington	9,000
		Dallas	30,000
		Escambia	38,000
		Marengo	< 1,000
		Mobile	401,000
		Monroe	24,000
		Perry	5,000
		Washington	8,000
		Wilcox	13,000
Florida	626,000		
		Escambia	308,000
		Okaloosa	170,000
		Santa Rosa	117,000
		Walton	31,000
Mississippi	141,000		
		George	16,000
		Greene	2,000
		Jackson	123,000
TOTAL	1,474,000		

The number of persons estimated to be within hurricane force winds comes from Census 2000 values.

Details about this model may be obtained at https://englink.usace.army.mil or contact ENGLink at 1-877-936-4546

US Army Corps of Engineers

Hurricane Ivan Population Model

Sources:
HURREVAC
LRL-DEBRIS

CELRL-OP GIS Group

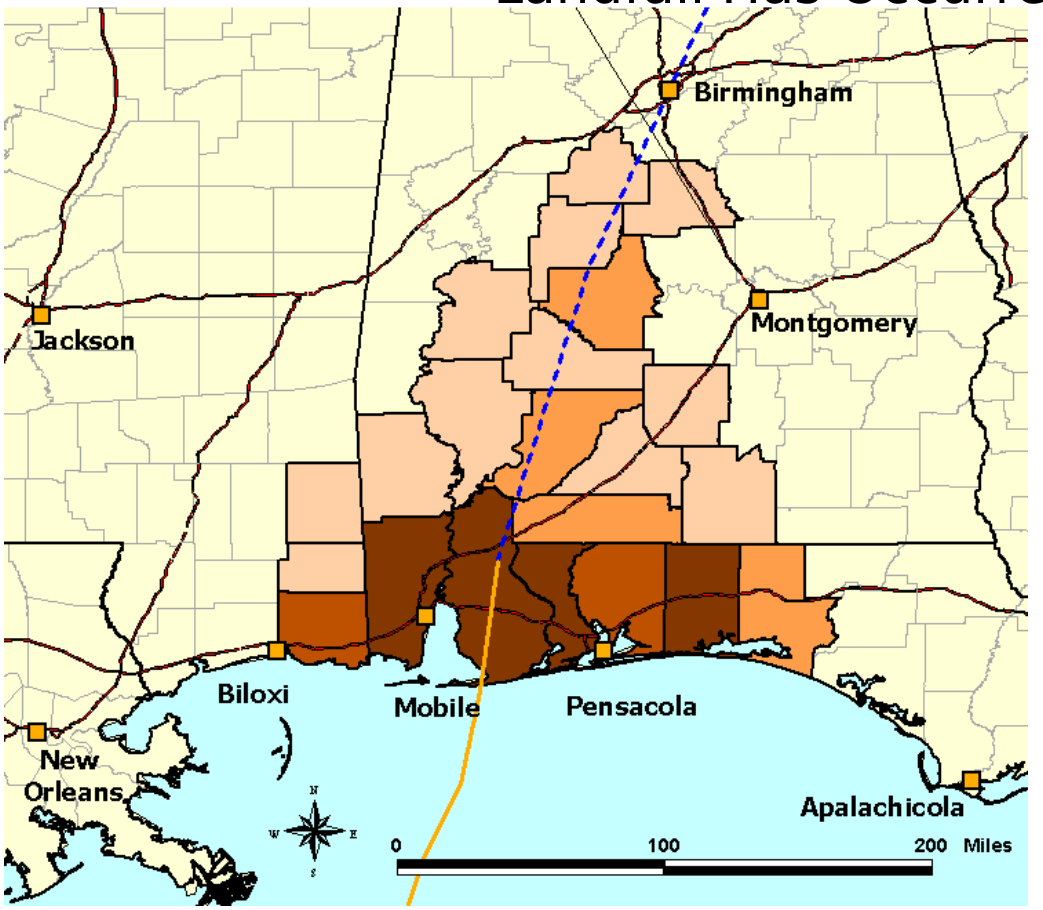
Generated By:
Terry Siemsen

Generated Date
0630 EDT
09/16/2004

Hurricane Ivan Households Model

Landfall Has Occurred

For Official Use Only!



Most Probable Landfall Households Model Results

Alabama – 270,000 households
Florida – 240,000 households
Mississippi – 51,000 households

Model results per county on following page

This hurricane scenario is based on a Category 3 storm making landfall in near proximity to Gulf Shores, AL

Information provided on this page displays the most probable hurricane track based on information from the National Hurricane Center (NHC). These projections are based on information from the NHC ***(0500 EDT 09/16/2004)*** forecast.

The number of households included in this model output are those that would be included within estimated hurricane force winds (Census 2000 values).

Details about this model may be obtained at
https://englink.usace.army.mil
or contact ENGLink at 1-877-936-4546

US Army Corps of Engineers **Hurricane Ivan Households Model**

Sources:
HURREVAC
LRL-DEBRIS

Generated By:
Terry Siemsen

Generated Date
0630 EDT
09/16/2004

CELRL-OP GIS Group

Louisville Operations Division GIS

Hurricane Ivan Households Model

Landfall Has Occurred

For Official Use Only!

State	Households per State	County	Households
Alabama	270,000		
		Baldwin	55,000
		Bibb	2,000
		Butler	< 1,000
		Chilton	< 1,000
		Clarke	7,000
		Conecuh	6,000
		Covington	4,000
		Dallas	12,000
		Escambia	14,000
		Marengo	< 1,000
		Mobile	151,000
		Monroe	9,000
		Perry	2,000
		Washington	3,000
		Wilcox	5,000
Florida	240,000		
		Escambia	117,000
		Okaloosa	66,000
		Santa Rosa	44,000
		Walton	13,000
Mississippi	51,000		
		George	6,000
		Greene	< 1,000
		Jackson	45,000
TOTAL	561,000		

The number of households estimated to be within hurricane force winds comes from Census 2000 values.

Details about this model may be obtained at **https://englink.usace.army.mil** or contact ENGLink at 1-877-936-4546

US Army Corps of Engineers

Hurricane Ivan Households Model

Sources:
HURREVAC
LRL-DEBRIS

Generated By:
Terry Siemsen

Generated Date
0630 EDT
09/16/2004

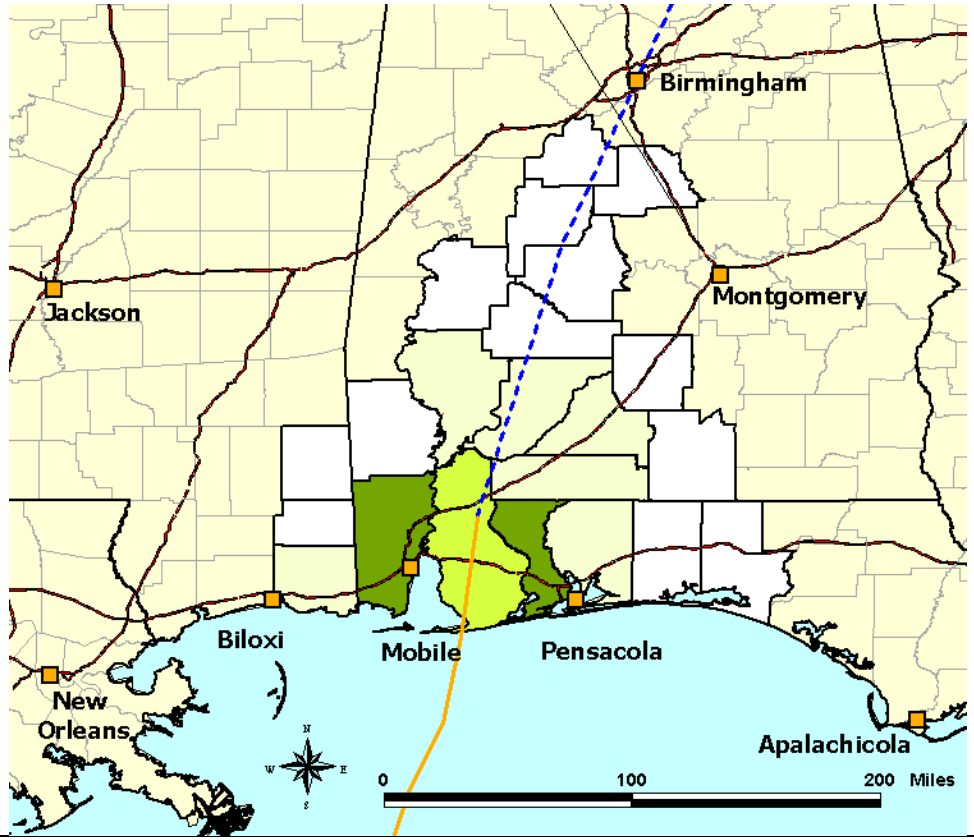
CELRL-OP GIS Group

Louisville Operations Division GIS

Hurricane Ivan
Temporary Roofing Model Results

Landfall Has Occurred

For Official Use Only!



Most Probable Landfall Temporary Roofing Model Results

Alabama – 11,500
Florida – 8,000

Model results per county on following page

This hurricane scenario is based on Category 3 storm making landfall in near proximity to Mobile, AL.

Information provided on this page displays the most probable hurricane track based on information from the National Hurricane Center (NHC). These projections are based on information from the NHC ***(0500EDT 9/16/2004)*** forecast.

The amount of temporary roofing that may be required is based on no roofing need in CAT 1 wind areas, no roofing need in CAT 2 wind areas, 4% of housing units damaged in CAT 3 wind areas, and 8% of housing units damaged in CAT 4 wind areas. This only indicates possible need – not necessarily a mission to repair roofs.

Details about this model may be obtained at
https://englink.usace.army.mil
or contact ENGLink at 1-877-936-4546

US Army Corps of Engineers

Hurricane Ivan Temp Roofing Model

Sources:
HURREVAC
LRL-DEBRIS

Generated By:
Terry Siemsen

Generated Date
0630 EDT
9/16/2004

CELRL-OP GIS Group

Louisville Operations Division GIS

Hurricane Ivan
Temporary Roofing Model Results

Landfall Has Occurred

For Official Use Only!

State	Structures per State	County	Structures per County
Florida	8,000		
		Escambia	7,000
		Santa Rosa	1,000
Alabama	11,500		
		Baldwin	4,000
		Escambia	300
		Mobile	7,000
		Monroe	200
TOTAL	19,500		

THIS IS AN EXPERIMENTAL MODEL !! THE VALUES ARE PRELIMINARY AND SHOULD BE CONSIDERED A GUIDE BUT NOT AN ABSOLUTE VALUE !!

The amount of temporary roofing that may be required is based on no roofing need in CAT 1 wind areas, 3% of housing units damaged in CAT 2 wind areas, 6% of housing units damaged in CAT 3 wind areas, and 12% of housing units damaged in CAT 4 wind areas. This only indicates possible need – not necessarily a mission to repair roofs.

Details about this model may be obtained at **https://englink.usace.army.mil** or contact ENGLink at 1-877-936-4546

US Army Corps of Engineers

Hurricane Ivan emp Roofing Model

Sources:
HURREVAC
LRL-DEBRIS

Generated By:
Terry Siemsen

Generated Date
0630 EDT
9/16/2004

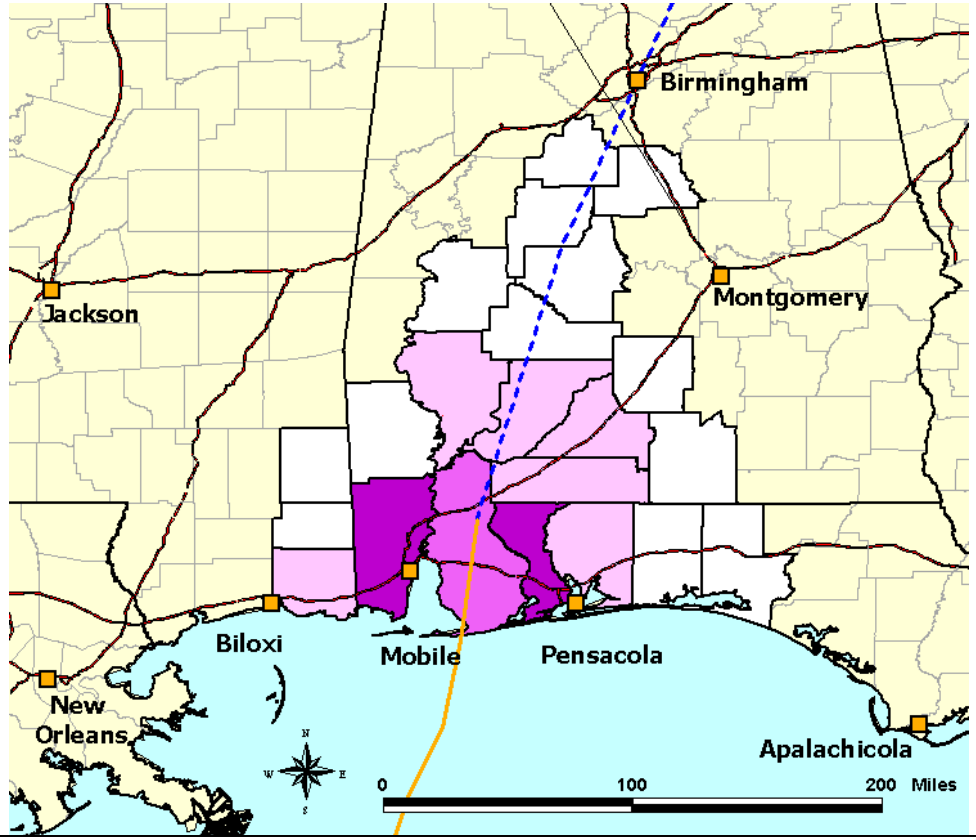
CELRL-OP GIS Group

Louisville Operations Division GIS

Hurricane Ivan
Temporary Housing Model Results

For Official Use Only!

Landfall Has Occurred



Most Probable Landfall Temporary Housing Model Results

Alabama – 7,100 structures
Florida – 5,600 structures

Model results per county on following page

This hurricane scenario is based on a Category 3 storm making landfall in near proximity to Gulf Shores, AL

Information provided on this page displays the most probable hurricane track based on information from the National Hurricane Center (NHC). These projections are based on information from the NHC ***(0500 9/16/2004)*** forecast.

The amount of temporary housing that may be required is based on no housing need in CAT 1 wind areas, no housing need in CAT 2 wind areas, and 5% of housing units lost in CAT 3 wind areas.

Details about this model may be obtained at
https://englink.usace.army.mil
or contact ENGLink at 1-877-936-4546

US Army Corps of Engineers

Hurricane Ivan emp Housing Model

Sources:
HURREVAC
LRL-DEBRIS

Generated By:
Terry Siemsen

Generated Date
0630 EDT
9/16/2004

CELRL-OP GIS Group

Louisville Operations Division GIS

Hurricane Ivan
Temporary Housing Model Results

For Official Use Only!

Landfall Has Occurred

State	Structures per State	County	Structures per County
Florida	5,600		
		Escambia	4,600
		Santa Rosa	1,000
Alabama	7,100		
		Baldwin	2,300
		Escambia	200
		Mobile	4,500
		Monroe	100
TOTAL	12,700		

THIS IS AN EXPERIMENTAL MODEL !! THE VALUES ARE PRELIMINARY AND SHOULD BE CONSIDERED A GUIDE BUT NOT AN ABSOLUTE VALUE !!

The amount of temporary housing that may be required is based on no housing need in CAT 1 wind areas, no housing need in CAT 2 wind areas, and 5% of housing units lost in CAT 3 wind areas.

Details about this model may be obtained at
https://englink.usace.army.mil
or contact ENGLink at 1-877-936-4546

US Army Corps of Engineers

Hurricane Ivan emp Housing Model

Sources:
HURREVAC
LRL-DEBRIS

Generated By:
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9/16/2004

CELRL-OP GIS Group